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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,996	02/14/2002	Caroline S. Harris	1660A1	9847

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PPG Industries, Inc.
Intellectual Property Dept.
One PPG Place
Pittsburgh, PA 15272

EXAMINER

BLACKWELL RUDASIL, GWENDOLYN A

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,996

Applicant(s)

HARRIS ET AL.

Examiner

Gwendolyn Blackwell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,12,13,15-19,22-35,37-52 and 55-57 is/are pending in the application.
- 4a) Of the above claim(s) 40-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10,12,13,15-19,22-35,37-39 and 55-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-10, 12-13, 15-19, 22-35, 37-39, and 55-57 are currently pending and examined on the merits. Claims 40-52 are withdrawn to a non-elected invention. Claims 11, 14, 20-21, 36, and 53-54 are canceled.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-10, 12, 15, 17-19, 22, 24-26, 29-34, 37-39, and 55-57 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent no. 5,871,843, Yoneda et al.

Regarding claim 1

Yoneda et al disclose a laminate substrate with the surface film having low reflecting and stain-proofing (hydrophilic) properties, (column 6, lines 14-23). The laminate has a flat portion having a surface roughness of at most 3 nm, more preferably at most 1 nm, (column 5, lines 1-9). The micropores within the surface film has a volume ratio of 3-35%, (column 5, lines 25-35). As the volume of the micropores can be significantly less than 50% volume the film is considered to be “substantially non-porous”. Between the hydrophilic coating and the substrate an interlayer can be employed, (column 11, lines 13-18). The film is comprised of tin oxide, zinc oxide, cobalt oxide, chromium oxide, silicon oxide, and titanium oxide, (column 6, lines 14-49).

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01*. Because the prior art exemplifies the applicant's claimed photo-induced hydrophilic-coated substrate, the claimed physical properties are present in the prior art. Absent an objective showing to the contrary, the addition of the claimed physical properties to the claim language fails to provide patentable distinction over the prior art of record.

The limitations of the hydrophilic coating and surface roughness are set forth above. The limitations regarding the deposition of the hydrophilic film in a float glass process through CVD in a particular temperature range are process limitations. Yoneda et al disclose that the some of the coatings on the substrate can be deposited through sputtering or CVD, (column 11, lines 55-65). "If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *See MPEP 2113*. As such, the process limitations within claim 1 do not provide patentable distinction between the claimed invention and the prior art of record, meeting the limitations claim 1.

Regarding claims 2-10, 17-19, 32, 37-38, and 55

Because the prior art exemplifies the applicant's claimed photo-induced hydrophilic-coated substrate, the claimed physical properties relating the water contact angle and photocatalytic activity are inherently present in the prior art, meeting the limitations of claims 2-5, 17-19, 37, and 55.

The coating has a thickness of preferably at most 30 nm (300 Å), (column 6, lines 24-27), meeting the limitations of claims 6-10, 32, and 38.

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Regarding claims 24-25, 39, 56, and 57

The limitations of the hydrophilic coating, surface roughness, and thickness are set forth above. Because the limitations regarding the deposition of the hydrophilic film in a float glass process through CVD in a particular temperature range are process limitations, the process limitations within claims 24-25, 39, 56, and 57 do not provide patentable distinction between the claimed invention and the prior art of record.

Regarding claim 12

Titanium oxide can be used for the photocatalytic layer, (column 6, lines 14-54), meeting the limitations of claim 12.

Regarding claim 15

As the surface portion of the film can have an area ratio of 20% of micropores, which is less than 50%, the surface of the film is considered to be substantially non-porous, (column 5, lines 1-9), meeting the limitations of claim 15.

Regarding claims 22 and 33-34

The interlayer can be used to prevent reflection (anti-reflective film), (column 11, lines 3-12), meeting the limitations of claims 22 and 33. Other coatings relating to an antistatic film, colored film, electromagnetic wave-shielding film, UV ray absorbing film (solar control) and a heat ray reflecting film can be used to control various properties of the coated glass, (column 11, lines 50-65), meeting the limitations of claim 34.

Regarding claims 26 and 29-31

The laminate can be applied to automobile windshields wherein the coating is applied to the exterior and interior surfaces of the windshield, (Example 18, column 18, lines 43-60),

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meeting the limitations of claims 26, 29, and 31. The window can be used a window glass used in buildings, (columns 12, lines 33-39), meeting the limitations of claim 30.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 16, 12-13, 27-28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent no. 5,873,203, Thiel in view of United States Patent no. 5,871,843, Yoneda et al as applied to claim 1 above.

Regarding claim 16

Thiel disclose a multiple glazed window unit comprised of at least two glass sheets with a photocatalytically-activated (hydrophilic) self cleaning coating formed over at least a portion of at least one of the interior surfaces as well as the exterior surfaces, (column 8, lines 9-30). The

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coating maybe formed using spray pyrolysis, CVD, sputtering, or vacuum deposition, (column 13, lines 52-67). Thiel does not specifically disclose the amount of surface roughness associated with the photocatalytic coating.

Yoneda et al disclose a laminate substrate with the surface film having low reflecting and stain-proofing (hydrophilic) properties, (column 6, lines 14-23). The laminate has a flat portion having a surface roughness of at most 3 nm, more preferably at most 1 nm (which incorporates Applicant's 0.2-0.7 nm), (column 5, lines 1-9). The micropores within the surface film has a volume ratio of 3-35%, (column 5, lines 25-35). As the volume of the micropores can be significantly less than 50% volume the film is considered to be "substantially non-porous". Between the hydrophilic coating and the substrate an interlayer can be employed, (column 11, lines 13-18). The film is comprised of tin oxide, zinc oxide, cobalt oxide, chromium oxide, silicon oxide, and titanium oxide, (column 6, lines 14-49). Because the prior art exemplifies the applicant's claimed photo-induced hydrophilic-coated substrate, the claimed physical properties are present in the prior art.

Thiel and Yoneda et al disclose analogous inventions related to the used of photocatalytic coatings on substrates used to remove contaminants from the coated substrate surface. It would have been obvious to one skilled in the art at the time of invention to modify the surface of Thiel with the surface roughness of Yoneda et al in order to construct a surface having increased abrasion resistance and stain proofing properties, (Yoneda, column 5, lines 1-9), claim 16.

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Regarding claims 12-13

Oxides such as titanium (anatase, rutile, and/or brookite), tungsten, aluminum, silicon, zinc stannate, molybdenum, zinc, strontium titanate and mixtures thereof can be used for the photocatalytic layer, (Thiel, column 12, lines 5-12), claims 12-13.

Regarding claims 27-28 and 30

The multiple glazed window unit has two or more glass sheets wherein the coating can be formed on either interior surface or exterior surface , (Thiel, columns 3-4, lines 35-15), claims 27-28.

Response to Arguments

7. Applicant's arguments, see 11-18, filed May 30, 2006, have been fully considered and are persuasive with respect to the rejections using USPN 6,312,131, Yamamoto, JP 11-090237, and USPN 6,387,514, Legrand. The rejections utilizing the aforementioned prior art have been withdrawn.

8. USPNs 5,871,843, Yoneda, and 5,873,203, Thiel, have been retained as relevant art. Based upon the claim amendments a new obviousness rejection has been made over Thiel in view of Yoneda. The maintained and new rejections have been set forth above.

9. Applicant's arguments filed May 30, 2006 have been fully considered but they are not persuasive with regards to Yoneda and Thiel. Applicant contends that Yoneda does not disclose the non-porosity of the coating as well as not disclosing the visible light reflectance.

Applicant requires that the coating and the coating surface is substantially non-porous not completely non-porous. Applicant's definition (specification, page 15, section 0036) of what is

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considered “substantially non-porous” is dependent upon whether or not a coating can withstand a conventional hydrofluoric acid drop test. Applicant has not demonstrated that the coating of Yoneda could not pass such a test. Applicant has also not demonstrated that the Yoneda coating would not have a visible light reflectance within the range as presently claimed by Applicant. Absent an objective showing to the contrary, Applicant’s arguments have not provided a patentable distinction between the prior art and the presently claimed invention.

Thiel is still considered relevant art as it discloses the placement of the photocatalytic coating on the glass surfaces.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn Blackwell whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday; 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gwendolyn Blackwell
Examiner
Art Unit 1775


gab


JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER
8/4/06